

What is Claimed:

1. A method of depositing at least one island of a liquid electronic material in a precise pattern on at least one electrode on a surface comprising the steps of;

forming a first layer of the at least one electrode on the surface to provide at least one electrical contact to the at least one island;

forming a second layer of the at least one electrode on a portion the first layer of at least one electrode substantially surrounding the precise pattern of the at least one island; and

depositing the liquid material on the at least one electrode so that the second layer of the at least one electrode constrains the liquid electronic material in the precise pattern.

2. A two layer electrode structure to promote the deposition of a fluid in a precise island pattern comprising;

a first electrode layer formed on a surface;

at least one island of the fluid in the precise island pattern formed on the first electrode layer and in electrical contact with the first electrode layer; and

a second layer formed in contact with the first electrode layer and substantially surrounding the at least one island of the precise island pattern.

3. The two layer electrode structure of claim 2, wherein the second layer is a low surface energy material.

4. The two layer electrode structure of claim 3, wherein the low surface energy material is at least one of Teflon and polyamide.

5. The two layer electrode structure of claim 2, wherein the second layer is a conductor.

1 6. The two layer electrode structure of claim 2, wherein the
2 second layer includes a plurality of sub-layers.

1 7. The two layer electrode structure of claim 6, wherein an
2 exposed sub-layer of the second layer is a low surface energy material.

1 8. The two layer electrode structure of claim 6, wherein at least
2 one sub-layer of the second layer includes a conductor.

1 9. The two layer electrode structure of claim 2, wherein the first
2 electrode layer is a transparent conducting material.

1 10. The two layer electrode structure of claim 9, wherein the
2 second layer includes a high conductivity material that is electrically coupled to the
3 first electrode layer.

1 11. The two layer electrode structure of claim 10, wherein;
2 the second layer includes a plurality of sub-layers; and
3 an exposed sub-layer of the second layer is a low surface energy
4 material.

1 12. The two layer electrode structure of claim 10, wherein the first
2 electrode layer is formed in the precise island pattern.

1 13. The two layer electrode structure of claim 2, wherein the first
2 electrode layer is at least one of indium-tin oxide (ITO) polyaniline, and a thin
3 metal.

1 14. The two layer electrode structure of claim 2, wherein the fluid
2 is a liquid deposited material.

1 15. The two layer electrode structure of claim 2, wherein the fluid
2 is at least one of a liquid crystal material, an organic light emitting diode (OLED)
3 material, an electron transport layer material, a hole transport layer material, an
4 insulator material, and a color filter material.

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1 16. The two layer electrode structure of claim 2, wherein the fluid
2 is a powder deposition material.

1 17. A method of improving a conductivity of a transparent
2 electrode structure in an electro-optical device comprising the steps of;

3 forming a transparent electrode material on a surface of the electro-
4 optical device; and

5 forming a high conductivity material on the surface of the electro-
6 optical device;

7 wherein the high conductivity material is in electrical contact with
8 the transparent electrode material and is configured not to obscure light passing
9 through the transparent electrode material.

1 18. An electrode structure comprising;

2 a substrate having a surface;

3 a first transparent electrode layer formed in a first area of the surface
4 which corresponds to at least one transparent window; and

5 a second electrode layer having a higher conductivity than the first
6 electrode layer and being formed in a second area of the surface, the second
7 electrode being electrically coupled to the first transparent electrode layer.

1 19. The two layer electrode structure of claim 18, wherein the
2 second layer is composed of a plurality of sub-layers.

1 20. The two layer electrode structure of claim 19, wherein an
2 exposed sub-layer of the second layer is a low surface energy material.

1 21. The two layer electrode structure of claim 18, wherein the first
2 transparent electrode layer is indium-tin oxide (ITO).

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1 22. The two layer electrode structure of claim 21, wherein the
2 second layer is at least one of polysilicon and a metallic conductor.

1 23. The two layer electrode structure of claim 21, wherein;
2 the second layer has a plurality of sub-layers, including;

3 a contact sub-layer including one of titanium-tungsten, palladium, and
4 titanium, which is in electrical contact with the first transparent electrode layer;
5 and

6 an aluminum sub-layer which is in electrical contact with the contact
7 sub-layer.

1 24. The two layer electrode structure of claim 23, further
2 including an exposed sub-layer formed from a low surface energy material.

1 25. The two layer electrode structure of claim 18, wherein the first
2 transparent electrode layer is one of tin oxide, indium-tin oxide, gold, calcium, and
3 polyaniline.

1 26. The two layer electrode structure of claim 18, wherein the
2 second area of the surface corresponds to at least one non-transparent section.

1 27. The two layer electrode structure of claim 26, wherein the first
2 area of the surface includes a portion of at least one non-transparent section.

1 28. The two layer electrode structure of claim 27, wherein the
2 portion of each non-transparent section on which the first transparent electrode
3 layer is formed is a whole of the at least one non-transparent section.

1 29. The two layer electrode structure of claim 18, wherein the first
2 transparent electrode layer and the second electrode layer extend to a substantially
3 equal height above the surface.

1 30. The two layer electrode structure of claim 26, wherein the at
2 least one non-transparent section surrounds the at least one transparent window.

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